CLAIMS

1. A method for adjusting the audio output of an apparatus in accordance with a desired level of a listener comprising:

playing sample tones on the apparatus to generate a hearing adjustment profile of a listener in an uncontrolled audio environment;

saving the hearing adjustment profile; and

applying the hearing adjustment profile to the audio apparatus to adjust the audio output of the audio apparatus in accordance with the hearing adjustment profile of the listener.

2. The method of claim 1 wherein the hearing adjustment profile comprises an audio spectrum divided into a plurality of bands of audio frequencies with a user selected level of amplitude for each frequency band.

3. The method of claim 1 wherein the step of applying the hearing adjustment profile comprises adjusting the audio output of the apparatus in accordance with a previously stored hearing adjustment profile.

4. The method of claim 1 wherein the step of generating a hearing adjustment profile comprises generating at least one sample tone within each band of frequencies and adjusting the level of amplitude of the sample tones until the level of each band reaches an audibility threshold of hearing for the listener for said sample tones.

5. The method of claim 4 comprising the further step of adjusting the level of amplitude of each sample tone so that it does not exceed a maximum level of amplitude set by the listener.

6. An apparatus providing an audio output adjustable in accordance with a hearing adjustment profile of a listener comprising:

a tone generator for playing sample tones on the apparatus to generate a hearing adjustment profile of the listener in an uncontrolled audio environment;

a memory for saving the hearing adjustment profile; and a controller for reading the memory and applying the hearing adjustment profile to the apparatus to adjust audio output of the audio apparatus in accordance with the hearing adjustment profile of the listener.

7. The apparatus of claim 6 wherein the hearing adjustment profile comprises an audio spectrum divided into a plurality of bands of audio frequencies with a user selected level of amplitude for each frequency band.

8. The apparatus of claim 6 wherein the hearing controller comprises a digital signal processor with a memory for saving the hearing adjustment profile and programs for processing an audio signal to produce an audio output customized in accordance with the hearing adjustment profile of the listener.

9. The apparatus of claim 6 wherein the hearing controller comprises analog circuitry for processing an audio signal to produce an audio output customized in accordance with the hearing adjustment profile of the listener.

10. The apparatus of claim 6 wherein the controller generates at least one sample tone within each band of frequencies and adjusts the level of amplification of the sample tones until their level reaches an audibility threshold of hearing for the listener.

11. The apparatus of claim 10 wherein the controller further limits or compresses the maximum audio output of each sample tone so that it does not exceed a maximum amplitude set by the listener.

12. A method for adjusting the audio output of an apparatus in accordance with a desired level of a listener comprising:

dividing an audio spectrum into a plurality of audio bands;

providing a sample frequency of each audio band at a reference level of amplitude;

adjusting the amplitude of the sample frequency to a desired level;

automatically adjusting the amplitude of the other frequencies in each band in accordance with the level of the adjusted sample frequency in that band; and

applying the adjusted levels of amplitude to provide an audio output customized to the desired levels of a user.

13. The method of claim 12 wherein the step of adjusting the level of the sample frequency includes raising or lowering the level.

14. The method of claim 12 further comprising setting a minimum and a maximum amplitude level for each sample frequency.

15. An apparatus for adjusting audio output in accordance with a desired level of a listener comprising:

means for dividing an audio spectrum into a plurality of audio bands;

means for providing a sample frequency of each audio band at a reference level of amplitude

means for adjusting the amplitude of the sample frequency to a desired level;

means for automatically adjusting the amplitude of the other frequencies in each band in accordance with the level of the adjusted sample frequencies; and

means for applying the adjusted levels of amplitude to the audio output to provide an audio output customized to the adjustment levels of a user.

16. The apparatus of claim 15 wherein the means for adjusting the level of the sample frequency includes means for raising or lowering the level.

17. The apparatus of claim 15 further comprising means for setting a minimum and a maximum level for each sample frequency.

18. An audio system adjustable to the frequency reception pattern of a listener comprising:

an audio amplifier for amplifying audio signals;

means for dividing an audio spectrum into a plurality of audio bands;

means for providing a sample frequency of each audio band at a reference level of amplitude

means for adjusting the amplitude of the sample frequency to a desired level;

means for automatically adjusting the amplitude of the other frequencies in each band in accordance with the level of the adjusted sample frequencies; and

means for applying the adjusted levels of amplitude to the audio amplifier to provide an audio output customized to the adjustment levels of a user.

19. The audio system of claim 18 wherein the means for dividing the audio spectrum into a plurality of audio bands comprises band pass filters.

20. The audio system of claim 18 wherein the means for adjusting the amplitude of the sample frequency to a desired level comprises a digital signal processor.

21. The audio system of claim 18 wherein the means for adjusting the amplitude of the sample frequency to a desired level comprises hearing aid limiting or compression circuitry.

22. The audio system of claim or 18 wherein each band may be adjusted to a minimum or a maximum level.

23. A method for adjusting the audio output of an apparatus in accordance with a desired level of a listener comprising:

self-administering a hearing test;

applying the results of the self-administered hearing test to an audio apparatus.

24. The method of claim 23 wherein the self-administered hearing test is conducted without a hearing reference.

25. The method of claim 23 wherein the hearing test measures reception of sound at different frequencies.

26. The method of claim 24 wherein the amplitude of each frequency is adjusted until the amplitude is at a minimum audibility level.

27. The method of claim 23 wherein the step of self-administering a hearing test comprises playing sample tones on the apparatus to generate a hearing adjustment profile of a listener in an uncontrolled audio environment; and

saving the hearing adjustment profile;

applying the hearing adjustment profile to the audio apparatus to adjust the audio output of the audio apparatus in accordance with the hearing adjustment profile of the listener.

28. The method of claim 26 wherein the hearing adjustment profile comprises an audio spectrum divided into a plurality of bands of audio frequencies with a user selected level of amplitude for each frequency band.

29. The method of claim 26 wherein the step of applying the hearing adjustment profile comprises adjusting the audio output of the apparatus in accordance with a previously stored hearing adjustment profile.

30. The method of claim 26 wherein the step of generating a hearing adjustment profile comprises generating at least one sample tone within each band of frequencies and adjusting the level of amplitude of the sample tones until the level of each band reaches an audibility threshold of hearing for the listener for said sample tones.

31. The method of claim 30 comprising the further step of adjusting the level of amplitude of each sample tone so that it does not exceed a maximum level of amplitude set by the listener.